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ANGINA PECTORIS,  
ILLUSTRATED BY THE CASE OF CHARLES SUMNER.

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## ANGINA PECTORIS, ILLUSTRATED BY THE CASE OF CHARLES SUMNER.\*

MR. PRESIDENT,—The terms of the resolution requesting this paper confine it to the consideration of “what is known of the pathology and treatment of angina pectoris,” and asks for “illustrations from the case of Charles Sumner, who was for several years under my care.”

So little has been definitely settled by the profession concerning its “pathology and treatment,” that but a moment or two of your time would be consumed in the statement of known facts, and I shall therefore request permission in the outset to go somewhat outside of your request, that I may refer as well to some of the opinions which have been entertained from time to time by prominent medical men within the last century.

It is now a little more than one hundred years since this disease first received a name and a place among the ills which afflict the human race.

Dr. Heberden, in 1768, first described angina pectoris, and declared that it was caused by organic disease of the heart. His articles were published in the second and third volumes of the Transactions of the London College of Physicians, since which time very little of its real pathology, if any, has been discovered, and almost nothing has been definitely decided in regard to its treatment.

In 1779, Dr. Parry wrote “an inquiry into the symptoms and causes of ‘syncope anginosa,’ commonly called angina pectoris.”

For many years after this work, the most weighty authorities united in attributing it to a sudden impediment in the coronary circulation. A weak, flabby condition of the heart was held by equally good men to be its undoubted cause for a number of years.

It being clinically true that during an attack, and in many cases during the interval, the impulse of the heart is weak and the pulse intermittent, it was argued that any cause which would produce these symptoms was therefore a cause of angina. And under this head were classed fatty degeneration, attenuation of the ventricular walls, insufficiency of the aortic valves, with regurgitation; but, as a rule, the majority of writers placed as its chief operating cause a defective coronary circulation.

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\* Prepared at the request of the Medical Society of the Alumni of the Medical Department of Georgetown College, Washington, D. C., and read May 4, 1874.

Some went so far as to declare this to be the only cause, and endeavored to prove that as a result of partial or complete occlusion of one coronary artery by ossification or atheromatous deposit, the heart, thus getting only a part of its blood supply, would be weak, and exhibit symptoms similar to fatty degeneration.

Dr. Stokes, the great Dublin authority on chest diseases, concludes that angina sums up the symptoms of a weakened heart, and connects it with disease of the coronary arteries.

Dr. Copeland thinks a variety of morbid changes in the heart may predispose to it.

Dr. Latham has written considerably to prove it to be caused by spasm of the heart, and insists upon its analogy to cramp in the voluntary muscles, and upon the efficacy of opium in relieving the distress. There is no doubt of the similarity in some respects of the agonizing pain and sense of constriction of the chest in angina, with the cramp of some of the voluntary muscles. It is, however, known to be true that this stroke of cramp or spasm of these muscles may continue in a state of absolute rigidity for a variable length of time, while there is required on the part of the heart constant relaxations, in order to admit the blood into its cavities from the return venous circulation, and that cramp or spasm of the heart would as much interfere with its functional action as a shock of paralysis.

It was until recently believed that this disease was always connected in some way, but exactly how no one attempted fully to explain, with some of the various pathological conditions of the heart or large arteries.

Niemeyer says angina pectoris is found almost exclusively in persons suffering from organic disease of the heart. Either ossification of the coronary arteries, valvular defects, hypertrophy, degeneration, or aneurism of the aorta has been found upon autopsy of most persons who have been afflicted in this manner. Nevertheless, we cannot regard angina pectoris as indicative of any of these diseases, not one of them being constant. And the malady itself always takes the same form, while the structural alterations differ most widely.

He calls it "nervous disorder of the heart," and quotes the term "cardiac neuralgia," to which these various organic changes merely afford a predisposition.

In certain rare instances, he has seen it where no organic disease existed, particularly in old obese persons.

Watson was of the opinion that it was a symptom of fatty degeneration, and considerable doubt began to be expressed if it was confined to cases of trouble with the coronary arteries; also whether there was any relation of cause or effect in its production assignable properly to disease of these arteries.

Wood states that in some cases it has been connected with tenderness of the spine. He thought that causes which resulted in the production of gout, rheumatism and neuralgia, when not present in sufficient force to produce any of these diseases, might produce angina, or that metastasis might occur. This is a comparatively rare affection.

Flint has seen 150 cases of organic disease of the heart, and only 7 of these had symptoms of angina.

He did not see a single case during the five years of a large private and hospital practice. He is of the opinion that it has a probable

connection, pathologically, with organic disease of the heart, but upon what pathological condition or circumstance common to different forms of organic disease it depends, is not yet ascertained.

He accounts for the suddenness of death in this very reasonable way, viz., he attributes it to over-accumulation of blood in the ventricular cavities, and arrest of the heart's action from paralysis. This disease has been noticed in persons where no pathological condition of the heart was present. In these cases, the great prostration and sense of impending death did not seem so great as where it had originated in some organic disease of the heart.

It is generally estimated, however, that the danger of sudden death in angina is proportioned to the gravity of the cardiac lesion which has given rise to it. There are several cases on record where the original disease of the heart has proved fatal without any of the angina symptoms making their appearance during the fatal attack.

Flint shows our lamentable ignorance upon its pathology as follows: "Of measures calculated to postpone or prevent the recurrence of its paroxysm, little is to be said, because we are unable to state upon which condition, of the various cardiac lesions, angina depends for its production," and he "knows of no remedies upon which reliance can be placed to effect a cure. Clinical discovery not having led to any means of striking at its root, it is doubtful if any special medication is to be pursued with a hope of effecting a cure, or in exerting a positive influence in lengthening the period of exemption from recurring attacks."

Handfield Jones, in his work on diseases of the nervous system, describes angina pectoris among functional troubles, and arrives at a positive opinion that it is a neuralgia. In answer to objections raised that neuralgia is never suddenly fatal, Jones declares that while neuralgia may be comparatively trivial when affecting the tri-facial or sciatic nerves, yet when it attacks the cardiac plexus it becomes a very grave affair. He accounts for the suddenness of death on the ground of the implication of organs which reside at the seat of life, and explains that were the heart not required to keep up the life of the patient, death need not take place, and would not, with the same amount of disease in any organ not constantly required to maintain life.

Roberts says, "angina pectoris or the 'breast-pang' is *supposed* to be a neurotic affection, associated with the cardiac plexus, accompanied with, according to some, spasm, and according to others, paralysis of the muscular tissue of the heart."

A majority of the cases of which he gives record have originated in connection with extensive atheromata or calcification of the coronary arteries, fatty degeneration or flabby dilatation of the ventricular walls.

Aitken thinks that it should be regarded rather as a symptom of organic disease of the heart, than as a disease by itself.

Bellingham, who is quoted by Aitken, says that the pain of angina so nearly resembles the agony of dyspnoea that he has been led to the declaration that angina is to the heart what dyspnoea is to the lungs, and has called it "dyspnoea of the heart."

Reynolds calls it "the neurotic disease," and recommends arsenic for its cure.

Jones speaks of the depressing influence of certain matters taken into



the stomach upon the heart, and mentions cases where disagreeable heart symptoms had followed the drinking large draughts of cold water, eating indigestible food; and classes tea among the occasional causes of angina pectoris.

I have thus far referred only to the authority and opinions of others. I shall hereafter draw from my own experience, when it is necessary to enforce, illustrate or corroborate the views which I may state.

During the three years of my professional intercourse with Mr. Sumner, I was a constant witness to many phases of this disease, and, in connection with Dr. Brown-Séquard, saw all treatment fail of a cure, while it is probable that our patient was indebted to morphine alone for the temporary alleviation of the terrible agony which its frequent attacks caused him.

Referring to the opinion of Jones, while Mr. Sumner never suffered from more than one attack of indigestion in his life, it was his habit to drink two cups of strong tea at breakfast, and I think he took considerable pride in his taste and skill in the selection of the best brands. He only drank it in the morning, and his attacks of angina appeared, as a rule, in the latter part of the day, frequently in the night.

I think the cause for their occurring so frequently at night during the winter of 1872 and 1873 was directly traceable to his sleeplessness, and the nervousness and exhaustion resulting therefrom.

I think I was able to trace this relation between his bodily vigor and power of endurance and the frequency of his paroxysms.

This inability to sleep well developed itself soon after the Presidential election and the death of Mr. Greeley, and as soon as he could be made to sleep nights these attacks grew less frequent.

The fact of his drinking tea was known to all his physicians, but none of the distinguished number, in this country or in Europe, ever advised him to suspend its use as a prevention of angina.

In my connection with this case, I have observed a curious fact, which it may be interesting to refer to here. I mean the unusual number of patients suffering from this disease, who, previous to Mr. Sumner's severe illness, had never supposed that they had any disease of the heart.

This fact has been referred to by newspaper correspondents, viz., that during the illness of Mr. Sumner, and especially since his death, instances of its occurrence have considerably increased, and especially among those who strongly sympathized with the late Senator.

This seemingly sympathetic cause of disease has been noticed in other cases. Probably, most physicians who have had much hospital experience have seen a case of hysterical convulsions followed immediately by several others, in women, who previously never had an attack, and in a lying-in-ward I have seen a case of puerperal convulsions act as an exciting cause of eclampsia in other occupants waiting to be confined.

I have been consulted by as many as thirty individuals, since Mr. Sumner's death, who imagined they were afflicted with his complaint. In some of these cases, there was organic disease of the heart, but in a majority of them there was no cardiac trouble at all.

Two weeks after the autopsy in Mr. Sumner's case, one of the physicians who assisted, a devotedly attached friend of the deceased, died of angina pectoris. I am informed that Dr. Hitchcock had but a few

attacks, and that, prior to Mr. Sumner's death, he had never been a sufferer from angina. I am not aware of his age, but, as I remember him the day of the *post-mortem*, he was an erect, elderly gentleman.

I have myself suffered two attacks very closely resembling, if they were not really, angina. One occurred immediately after Mr. Sumner's death, when greatly exhausted by constant attendance at his bed-side.

Dr. Brown-Séquard, having arrived in town that evening, in response to my telegram announcing the sinking condition of our distinguished patient, heard of my illness, and kindly came to my aid. After carefully examining the heart, and finding nothing abnormal, yet he said there were present the undoubted phenomena of a paroxysm of angina. He prescribed absolute rest in bed, artificial heat applied, a sinapism over the heart, and internally wine, opium and quinine.

The pain was soon allayed, and I slept quietly until morning.

I was present the next day, at the request of Messrs. Hooper and Pierce, to witness the taking of a plaster cast of the face and head of the Senator, by Mr. Preston Powers, and to prevent any injury to the expression or features. The room was the same in which the death occurred, and its chill, together with all its surroundings, induced, I am disposed to think, a renewal of the pain. This passed off soon after leaving the house. The second came on a few days ago, while preparing this paper. It was probably produced by a re-awakening of those recollections and sympathies which were so active in the causation of the first.

While conversing with friends or physicians upon the subject of these attacks, the pain has several times become greatly aggravated; and, *per contra*, when suffering severely, if I became intensely interested in any subject foreign to myself, the pains would abate, and if my attention remained absorbed any length of time, entirely disappear. How many times physicians have noticed this fact in nervous diseases! Toothache and neuralgia afford every day illustrations.

Trousseau agrees with other later authorities in classing angina as a neuralgic disease. He says, "in spite of the numerous publications which treat of angina pectoris, the history of that complaint is not very satisfactorily known, and the various opinions which have been expressed as to its nature have thrown so little light upon the subject that he wishes, in his turn, to communicate his views upon this singular *neuralgia*."

He refers to the views which formerly ascribed its chief cause to disease of the coronary arteries, or to some disease of the heart, simply to deny that there exists any relation of cause or effect, and says that these diseases do not generally produce any neuralgic symptoms.

In the absence of appreciable structural changes found in many autopsies, and from the extreme variability of the characteristic phenomena which he describes, he concludes that angina pectoris is a neurosis, or, to use a more positive term, a neuralgia.

Brown-Séquard says angina pectoris has no "common name." On the evening of my illness, he said to a reporter at my house (they followed him everywhere during the few hours he remained in Washington that day), in reply to a question as to what angina really was, "it has no common name. It is a very painful disease, accompanied by its own characteristic symptoms, and, although it has some points of

resemblance to neuralgia, in reality it is not that disease, but is just what we see it is," and what that is, it is difficult in the face of the authorities quoted for me to say.

Brown-Séquard has more than once referred to Mr. Sumner's case, in letters to me suggesting treatment, as "our case of pseudo-angina."

Flint, for a while, made two divisions in his description of this disease, naming that form *pseudo-angina* which was not, or was supposed not to be, produced by disease of the heart, and *true angina* which was attributed to some discoverable organic lesion. In his last edition, he speaks of angina with, and angina without, disease of the heart, but in both cases calls them neuralgia.

Roberts settles down to what he calls three predisposing causes of this disease, viz., *male sex, advanced age, and high social position.*

These three causes were all present in Mr. Sumner's case.

Sir John Forbes, by diligent search, collected 88 cases, and found that only 8, or 1 in 11, were females, and that in 84 of those cases, the age was given, and that 72 of this number were above 50 years of age; 49 died suddenly, and 43 of them had unmistakable disease of the heart.

A considerable number of more recent writers in the journals are convinced that angina is essentially a neuralgic disease. Some have placed its seat in the diaphragm, others in the respiratory muscles, but most frequently its location is placed in the heart. Here, the neuralgia is said to affect the cardiac nerves given off by the pneumogastric, and radiates frequently to the nerves of the cervical and radial plexus. In patients suffering with angina pectoris, the pain down the left arm and in the left elbow is sometimes nearly as severe as that in the heart.

Mr. Sumner suffered greatly in this way. When the pain lasted any length of time, the ulnar side of his left hand would be almost paralyzed, and numbness would occasionally remain for hours after all pain had subsided.

When patients are seized with an attack, they are frequently compelled to stop where they are and remain perfectly still, taking only half an inspiration, lest any motion should prove instantly fatal.

This was not the case with Mr. Sumner. He would at times get ease by walking the floor, and was unconscious of any increase of the agony by this exercise. Sometimes, when an attack would occur in the street, or while walking, he would find relief by leaning against a tree or upon the arm of a friend, or by resting his elbows upon some hard substance upon the same plane with his shoulders. This is a usual symptom in angina. Paroxysms, as a rule, take place suddenly, are severe while they last, and terminate as abruptly as they commenced. In his case, the rule was that they were preceded by "slight murmurings" or shooting pains about the heart. I remember two instances, however, of being hastily summoned in the night, to his bedside, only to find on my arrival that the agony had all ceased. Once he told me that he "had not expected to survive until I reached him, but the moment he heard my voice in the hall, the pain was gone."

Mr. Sumner's first attack of angina, of which I have any knowledge, occurred in Paris, while undergoing that form of treatment which Brown-Séquard described "as a martyrdom, causing the greatest suffering which can be inflicted upon mortal man." He says in another



place—in a Boston lecture—“and so he passed through that terrible suffering, the greatest I have ever inflicted upon any being, man or animal.” He referred to the moxa which he had applied in six different places along the spinal column of his patient.

It may be as Wood says, that this first attack originated in tenderness or irritation of the spine, and it has always been Brown-Séquard's theory that much of his sufferings, and *possibly* his death, was caused by spinal irritation.

At no time during the life of the Senator was any disease of the heart diagnosticated, and his chest had been ausculted by the best diagnosticians in this country and in Europe.

This attack in Paris came on suddenly, and with great severity. Brown-Séquard was sent for, but, having gone out of town to see a patient, did not arrive for eight or ten hours, during which time Mr. Sumner was suffering the greatest agony. When the Doctor finally arrived, his patient was in a state of partial syncope, pale, surface cold, and covered with clammy perspiration; pulse intermittent, feeble and slow. Large doses of morphine, sinapisms over the heart, hot mustard foot baths, dry heat applied to the body and limbs, produced reaction, while the morphia suspended the pain. Mr. Sumner had one other attack, which he described as very similar to the first, before he came under my care. The treatment was about the same, only the morphia was injected subcutaneously, producing its effect more quickly, and thus saving him much severe pain.

The history of this disease varies greatly in different patients, in its mode of attack, length of interval, and in the intensity of the agony produced. Thus, while some may be overcome by the first seizure, leaving doubt as to the cause of their death, others may survive several hundred. A patient may have one very painful and prostrating paroxysm, and may never have a second; but as a rule, others will follow, it may be, at a considerable interval, or they may occur in quick succession. There is a wide-spread, popular dread of a third attack.

At first, direct causes can be assigned, such as a great strain, exhaustion, anger, sudden fright, excitement or emotion; but as they increase in frequency, no cause can be traced. They will come on when the patient is perfectly quiet, or while asleep. The first attack since my connection with the case occurred on the evening of Prof. Tyndall's first lecture in Washington.

The bad air in the poorly-ventilated lecture-room, together with the slight shocks produced by the alternating darkness and brilliant lights during the chemical experiments of the professor, had fatigued his eyes and brain, perhaps, and, on coming out of the crowded hall, he ran a few steps to overtake a car, and immediately after taking his seat the pain came on.

Patients who are the victims of this terrible disease, instinctively avoid active exercise, such as walking against the wind, up hill or flights of steps hurriedly, or soon after a hearty meal.

The length of the interval between the attacks is governed by no law which we know anything about. In Mr. Sumner's case, a cause which would produce an attack at one time had frequently no effect when repeated. Again, a sudden turn in his easy-chair, while quietly reading at night, would start up a most tearing agony, while at other times an excited speech in the Senate, accompanied by the most forcible

ble and muscular gesticulation, would not create even the suggestion of pain. After a very quiet day at home, wholly undisturbed by exciting causes, physical, mental or moral, he has been awakened out of a sound sleep, without even a dream for a cause, by a paroxysm of pain, which would only be alleviated by large, hypodermic injections of morphia.

It is the tendency of this disease to produce death suddenly, and, as a rule, by collapse. Next to the fearful pain, one of the most characteristic symptoms is a sense of impending death; and this foreboding intensifies with the number of seizures.

It is said of John Hunter, who was a terrible sufferer from angina, that he declared to his class "that his life was in the hands of any person or circumstance which should act powerfully upon his mind," and, in fact, he ultimately died in St. George's Hospital, from strong but suppressed feelings upon a point in which he was greatly interested. John Leach, of the London Punch, died, after several attacks of angina, at the age of 54.

A very unpleasant feature of this disease is the knowledge that one is at the mercy, so to speak, of unfriendly circumstances, coupled with the uncertainty of obtaining successful medical treatment.

The patient becomes aware, after a time, that he may be fatally attacked at any moment, and this sword of Damocles suspended constantly over his head, together with the pain and the necessity to momentarily regulate his actions and emotions, renders his life such a burden to him that he is not unwilling for it to fall, and cut asunder his slender thread of life.

Mr. Sumner has remarked to me several times, "Dr. Johnson, this *treacherous* disease produces in my mind a positive uncertainty, when I go out of my house, whether I shall ever enter it again a living man, and, with the pain I have to suffer, makes my life such a burden that the sooner it does its work the better I shall be pleased. Life, at the price I have to pay, is not worth the having."

Mr. Sumner had, probably, as many as an hundred of these attacks. At first, a distinct cause could be assigned for each recurrence. The interval between them varied in length from two years to twenty minutes. After they began to take place more frequently, they seemed to lessen in severity.

Mr. Sumner dined, uniformly, at six o'clock. His usual hour for retiring was twelve. It has been urged by some non-medical, and, therefore, incompetent judges, that during his fatal attack "the late Senator was a great sufferer from indigestion, and that he really died for the want of an emetic." The truth is, that his digestion was remarkably perfect. He frequently said to me, and to others in my hearing, that he "could eat any and everything with absolute impunity, except lobster, and this article of diet gave him the only attack of indigestion which he ever suffered since the time of his boyhood, when he ate green apples and sour grapes."

Angina occurs, as a rule, very abruptly, and terminates as suddenly as it begins. With Mr. Sumner, slight, shooting pains through the heart, and down the left arm would often precede an attack. Later, he suffered more frequently at night than in the daytime. He was never able to exactly describe the pain. He would say "that it seemed much like the sudden grasp of a cold hand, which gradually tightened, until it felt like a clasp of steel crushing his heart to atoms."

Da Costa makes use of this same expression. He says "its main feature is an agonizing pain in the præcordia, as if the heart were being firmly grasped by an invisible hand, or, as it were, being torn to pieces." He remarks, further on, by way of assisting us to a pathological solution of this mystery, that the immediate conditions upon which the symptoms of the attack depend, lie veiled in obscurity. Other authors say we do not know what the precise causes of this angina are, but we do know that they occasion paroxysms of the most intolerable anguish.

One author goes so far as to say that the pangs of angina are greater than those of child-birth, and much harder to bear, inasmuch as the anticipated result in one case is the addition of a life to the world, while in the other, the probable result is the death of the sufferer. So far as my experience goes, there is no pain which compares with that in angina pectoris, and few cases, if any, combine so much real physical agony with such keen anxiety concerning the final result.

I have not much to say of its treatment, for the reason that we know so little of its causes or pathology. The fact is we do not know what to treat.

Niemeyer says, "it is doubtful if it be in our power to relieve the paroxysms of angina pectoris by any means of medication." He declares that opiates and other narcotics are to be avoided. The weight of authority, however, you will find to be decidedly in favor of morphia in some form, administered in such a way as to accomplish its result most speedily.

Hypodermic injections of some of its preparations have been entirely effective, in my hands, in controlling the pain, and produce, so far as I know, no more disagreeable after-symptoms than when administered for the relief of other painful affections. Sinapisms applied over the region of the heart, friction of cold hands, limbs and feet, hot mustard pediluvia and dry heat, in cases of syncope or collapse, with the usual arterial and diffusible stimuli, combine about all the most useful remedial measures which may be prescribed during an attack.

During the interval, if the cause be known, or can be ascertained, it should be treated upon the same principles which would be indicated were there no angina, and in any case all known aggravating habits or circumstances should be avoided, and great care used to keep up the general tone and power of the circulatory, nervous and digestive systems.

Wood, in the last edition of his *materia medica*, only a few months ago published, speaks of the nitrite of amyl, and of its pretended specific influence in this disease. After referring to its being first suggested by Dr. Lauder Brunton, in an article published in the *London Lancet*, 26 July, 1867, and reprinted from the *London Clinical Society's Reports*, vol. iii., goes on to say, "the pathology of these cases of 'heart-pang' is not definitely made out, and so it seems useless to speculate how the nitrite acts in many cases, but there is now abundant evidence of its value in relieving, almost instantly, agony which has resisted all other treatment."

This remedy was faithfully and repeatedly made use of in Mr. Sumner's case, on the suggestion of Dr. Brown-Séquard, without any amelioration of his sufferings. The bichloride of methyl was also used without any good results. I cannot speak with any positiveness of



the general usefulness of these two remedies, as my experience with them does not extend beyond this case.

The following is a copy of my despatch to Dr. Brown-Séquard, written at Mr. Sumner's bedside :—

{ WASHINGTON, D. C., Senator  
SUMNER'S House, 6, A. M.,  
11th March, 1874.

{ DR. C. E. BROWN-SEQUARD,  
18 East 29th St., New York City.

Mr. Sumner had a very severe attack of his angina at 9, P.M. I applied the remedies heretofore successful, and, after one repetition in half an hour, he became quiet and slept. Then came a fearful attack of terrible pain in the heart, followed soon by great prostration, cold, clammy surface, from which he has not up to this hour revived, and his pulse is growing very weak, hardly perceptible at the wrist. Heat externally applied, and brandy and ammonia internally, do not produce reaction. Tracheal and bronchial râles are very loud, and he is gradually sinking; eyes glassy and vision dim. Mr. Sumner has been your patient for fifteen years or more, and I hope you will come at once to him. Answer. JOS. TABER JOHNSON, M.D.

A reply came before 9 o'clock, addressed to Mr. Sumner's private secretary, that he should leave on first train.

The following despatch was received by me about 11 o'clock.

{ NEW BRUNSWICK, N. J.,  
9½, A.M., 11th March, 1874.

{ DR. J. TABER JOHNSON,  
At Senator SUMNER'S House,  
Washington, D. C.

Apply galvanism round chest, on insertion of diaphragm.

BROWN-SEQUARD.

The condition of the patient had by this time become so hopeless, that it was decided, by the Surgeon-General and Dr. Lincoln, whom I had called in consultation at the time of telegraphing Brown-Séquard at 6, A.M., to be utterly useless, and as it was thought that the effort of being moved in the bed might prove instantly fatal, it was never used.